



Understanding the Interactions between Climate Change and Air Quality

by S.T. Rao

There is increasing evidence and scientific consensus that our world's climate may be changing due to, among other things, fossil-fuel combustion, biomass burning, and forest and soil destruction. Scientific analyses suggest that, as a result of increasing greenhouse gas emissions, there could be substantial changes in seasonal temperature and precipitation patterns, which, in turn, could adversely affect air quality and human health.

To examine the effects of climate change and future emissions on air quality, there have been some efforts to interface regional-scale air quality models with global climate

models. However, these modeling tools do not properly treat the feedback mechanisms between atmospheric chemistry and meteorological processes. To simulate the key interactions between climate change and air quality, fully coupled meteorological and atmospheric chemistry models are needed; such models are currently being developed by the scientific community.

This issue of *EM* presents a series of articles that focus on climate change and air quality interactions—what we know so far and the challenges that remain. The first article provides an overview of the problem at hand and the need for a coordinated approach to addressing air quality and climate change issues. Following this, a series of articles by various researchers present aspects of interactions of climate change and air quality. It should be noted that the views expressed in these articles do not necessarily reflect the views and policies of any federal agency. **em**

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